

Name \_\_\_\_\_

## H-R Diagrams

### Part 1: Classifying stars by one attribute

Plot the stars based on the following single attributes as seen in the model. Note any additional observations about the types of stars being plotted (i.e. size, color, radius, mass).

#### Color

Additional Observations:

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1. How does the color of the star relate to the size (radius) of the star, if at all?
2. What could the color of a star possibly indicate about its temperature?

#### Temperature

Additional Observations:

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20,000      15,000      10,000      6,000      3,000  
(Kelvin)

3. Does temperature of a star have any relation to its size?

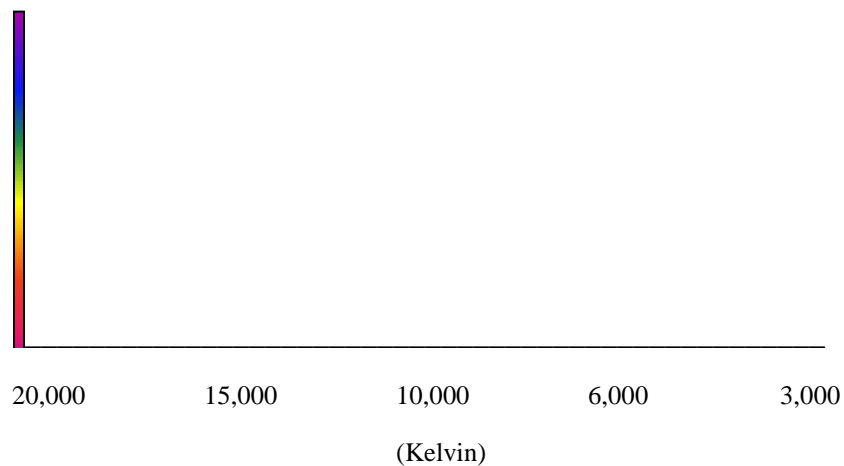
4. Does the temperature of a star have any relation to its color?

5. After analyzing the two plots on temperature and color what can you infer from them about the relationship between a star's color, size, and temperature?

### **Part 2: Classifying stars by two attributes**

Based on what you have observed from the model plot the following attributes in relation to one another.

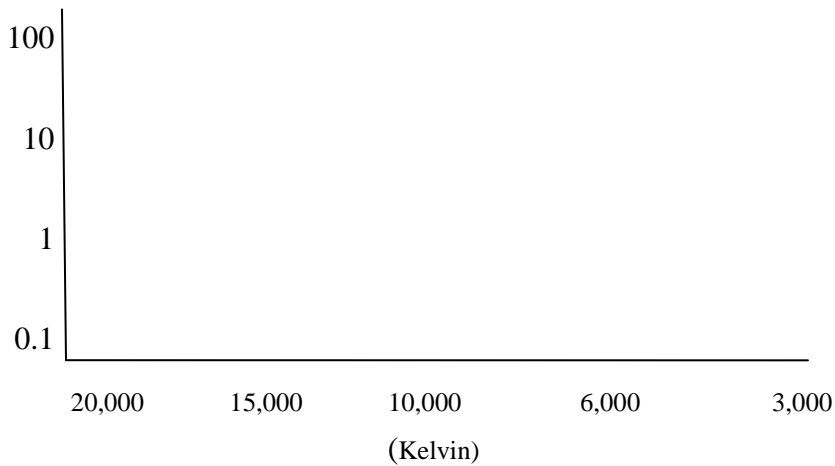
#### **Color vs. Temperature**



6. What relationship do you see between the temperature and colors of the stars?

7. What is the shape of the plot? What does that tell you about the relationship between these two attributes?

### Temperature vs. Mass



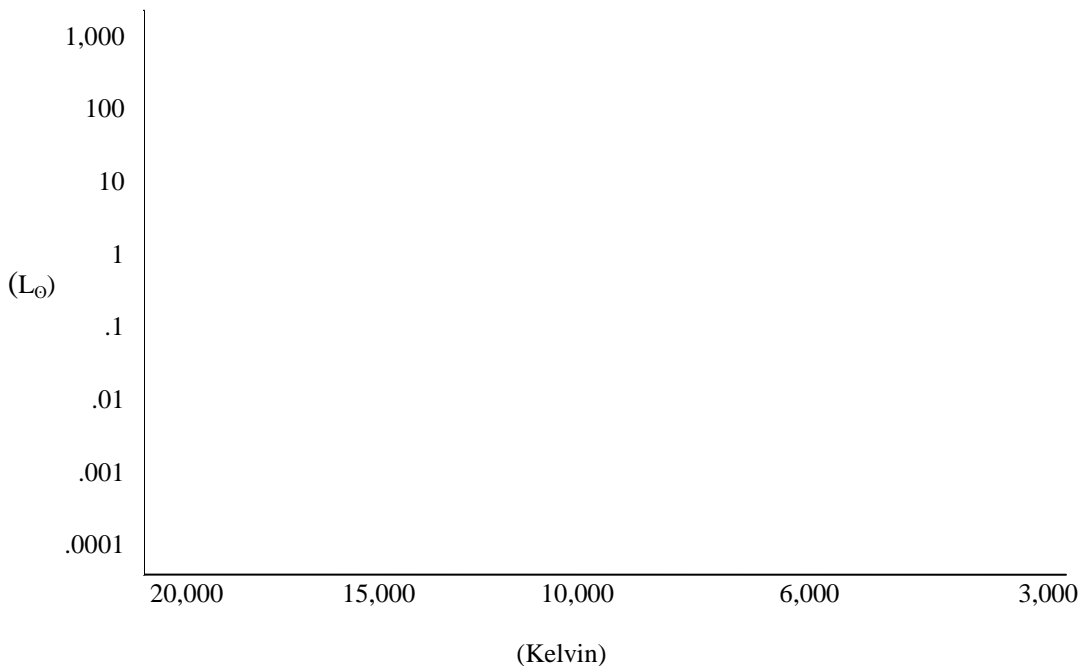
8. Is there a relationship between the mass of a star and its temperature? If so, what is the relationship?

9. Does the plot have the shape of a perfect line or is it scattered with a trend? What does that tell you about the relationship?

### Part 3: The H-R Diagram

After using the model to organize stars according to the H-R diagram, draw a replicate of the plot. Then label the following types of stars on the plot: main sequence stars, giants, supergiants, white dwarfs.

### Luminosity vs. Temperature



10. How does the star at the lower right end of the main sequence compare to the star at the upper left end of the main sequence?
11. Describe the giants and supergiants. How are their radii different from main sequence stars? How are their temperatures different?
12. How do White dwarfs compare with stars in the main sequence?
13. From looking at the plots how does the luminosity of a star relate to its temperature and color?
14. By looking at the various types of stars on the plot can you predict the movement of a star on the plot as it ages?